

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A heat exchanger assembly, comprising:
 - a semiconductor chip;
 - a heat conducting plate having a first surface positioned adjacent said semiconductor chip;
 - a circular chamber positioned above a second surface of the heat conducting plate, an outer perimeter of the circular chamber being defined by the inside surface of an annular wall;
 - a plurality of heat conducting fins disposed within the circular chamber arranged in a spiral pattern, each fin extending from a central area of the chamber out toward a peripheral portion of the chamber;
 - a fluid inlet aperture positioned at a central portion of the circular chamber, configured to direct fluid entering the chamber to impinge against the second surface of the plate; and
 - a fluid outlet aperture positioned at a peripheral region of the circular chamber;
 - at least one annular space in the circular chamber proximate the annular wall, between a trailing edge of the fins and the annular wall; and
 - an overhead wall of the circular chamber having an annular fluid channel recessed upwardly into the wall and having a varying cross sectional area with the area being greatest at a distance furthest from the fluid outlet aperture and the area being at a minimum adjacent the fluid outlet aperture.
2. (Previously Presented) The heat exchanger assembly of claim 1 wherein the plurality of fins are positioned in a generally radial direction extending from a central region of the circular chamber towards a peripheral region.
3. (Cancelled)

4. (Original) The heat exchanger assembly of claim 1 wherein the circular chamber comprises an overhead wall and there is at least one annular channel recessed upwardly into the overhead wall.

5. (Cancelled)

6. (Currently Amended) The heat exchanger assembly of claim 3-1 wherein each fin extends laterally from a leading edge to a trailing edge with the trailing edge being closer to the peripheral portion of the circular chamber, and the fin being laterally curved in the direction of the spiral pattern.

7.-9. (Cancelled)

10. (Previously Presented) The heat exchanger assembly of claim 1 wherein the fins are arranged in at least two concentric circular arrays, comprising at least an inner array and at least an outer array, each circular array comprising a plurality of fins arranged in a generally radial pattern with each fin extending from a leading edge of the fin to a trailing edge of the fin, the trailing edge being positioned radially outward of the leading edge closer to a peripheral region of the circular chamber.

11. (Previously Presented) The heat exchanger assembly of claim 10 wherein the fins of each circular array are arranged in a spiral pattern, each fin have a leading edge and a trailing edge, with the trailing edges of the fins being positioned closer to a peripheral region of the circular chamber than leading edges.

12. (Previously Presented) The heat exchanger assembly of claim 10 wherein the circular chamber has at least two annular space regions, with at least a first annular space being between the inner array and outer array of fins, and at least a second annular space being between the outer array of fins and an inside surface of an annular wall of the chamber.

13. (Currently Amended) The heat exchanger assembly according to claim 12 wherein ~~an overhead wall of the circular chamber has at least one annular fluid channel recessed upwardly into the wall, the annular fluid channel being~~ is disposed over at least one of the annular space regions in the circular chamber.

14. (Cancelled)

15. (Previously Presented) The heat exchanger assembly of claim 2 wherein an outer portion of the circular chamber has a varying cross sectional area.

16. (Previously Presented) The heat exchanger assembly of claim 15 wherein the cross section area of the outer portion of the chamber is greatest at a position diametrically opposed to the position of the fluid outlet aperture.

17. (Previously Presented) The heat exchanger assembly of claim 2 wherein the fluid inlet aperture is positioned in overhead wall of the circular chamber at the center of the wall and the fluid outlet aperture is positioned in the overhead wall at the periphery of the wall.

18.-42. (Cancelled)

43. (Currently Amended) A heat exchanger for a semiconductor chip comprising:

a heat conducting surface;

a circular chamber positioned above the heat conducting surface;

a fluid inlet aperture in the circular chamber;

a fluid outlet aperture in the circular chamber;

a plurality of heat conducting fins disposed within the circular chamber and arranged in at least two concentric circular arrays, comprising at least an inner array and at least an outer array, each circular array comprising a plurality of fins arranged in a generally radial pattern with each fin extending from a leading edge of the fin to a trailing edge of the fin, the

trailing edge being positioned radially outward of the leading edge closer to a peripheral region of the circular chamber; and

~~wherein the circular chamber has two~~first and second annular space regions, with ~~at the~~ first annular space being between the inner array and outer array of fins, and ~~a the~~ second annular space being between the outer array of fins and an inside surface of an annular wall of the chamber

an annular fluid channel recessed upwardly into an overhead wall of the circular chamber and having a varying cross sectional area, the cross sectional area being greatest at a distance along the channel furthest from the fluid outlet aperture and at a minimum adjacent the fluid outlet aperture, the annular fluid channel being disposed over at least one of the annular space regions in the circular chamber.

44. (Previously Presented) The heat exchanger according to claim 43 wherein an overhead wall of the circular chamber has at least one annular fluid channel recessed upwardly into the wall, the annular fluid channel being disposed over at least one of the annular space regions in the circular chamber.

45-46. (Cancelled)

47. (Previously Presented) The heat exchanger of claim 10 wherein the inner array is spaced apart from the outer array, having an annular space therebetween.

48. (Currently Amended) The heat exchanger of claim 1 wherein ~~the circular chamber comprises an overhead wall, and~~ each of the plurality of heat conducting fins extends from the second surface of the heat conducting plate to the overhead wall.